

## CLAIMS

1. An electrolyte layer for a fuel cell comprising:  
a compact substrate through which passes a gas supplied to  
5 the electrochemical reaction;  
a porous layer with fine pores that is formed on the  
substrate; and  
an inorganic electrolyte supported in the pores.
- 10 2. An electrolyte layer for a fuel cell according to  
Claim 1, wherein  
the substrate includes hydrogen-permeable, and  
the electrolyte includes proton-conducting.
- 15 3. An electrolyte layer for a fuel cell according to  
Claim 2, wherein the electrolyte includes a solid acid.
4. An electrolyte layer for a fuel cell according to  
Claim 2, wherein the electrolyte includes a liquid acid.
- 20 5. A fuel cell comprising:  
an electrolyte layer for a fuel cell according to any one  
of Claims 1 through 4, and  
an electrode adjacent disposed adjacent to the porous  
25 layer, on the side opposite the substrate.

6. A method of manufacturing an electrolyte layer for a fuel cell, the method comprising:

preparing a compact substrate through which passes a gas supplied to the electrochemical reaction;

5 forming a porous layer with fine pores on the substrate;  
and

supporting an inorganic electrolyte in the pores.

7. A method of manufacturing an electrolyte layer for a  
10 fuel cell according to Claim 6, wherein  
the substrate includes hydrogen-permeable, and  
the electrolyte includes proton-conducting.

8. A method of manufacturing an electrolyte layer for a  
15 fuel cell according to Claim 7, wherein  
the electrolyte includes a solid acid, and  
the supporting the inorganic electrolyte includes  
introducing a solution of a solid acid into the pores of  
the porous layer, and  
20 drying the porous element containing the solution.